



Federal Transit Administration Forum

Asset Management Process and Strategy

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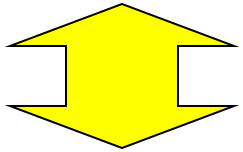
Capital Program Management

NYCT Capital Planning Basics

- 20-Year Needs analysis produced every five years as a legislative requirement.
- Five Year Capital Plan is based on 20-Year Needs analyses.
- Asset inventories are a key part of producing the 20-Year Needs and validating five year plan submissions.

NYCT Capital Planning Process

20-Year Needs Assessment



Rolling Five-Year Plan Process

20-Year Needs Assessment

20-Year Needs Assessment

- MTA/NYCT's long-range capital investment strategy.
- Guides departments when preparing capital and operating budgets.
- Needs-based process, not strictly constrained by funding availability.
- Coordinated with the five-year capital plan.

Step 1:
Asset Inventory & Condition Assessment

Asset inventory updated by departments

- Typical asset information includes location, age, most recent capital investment, and condition rating.
- Condition of assets updated with input from maintainers, typically an extract of more detailed maintenance data.
- Determination of whether individual assets are in good repair or not.

Step 2:
Investment Pace and Strategy

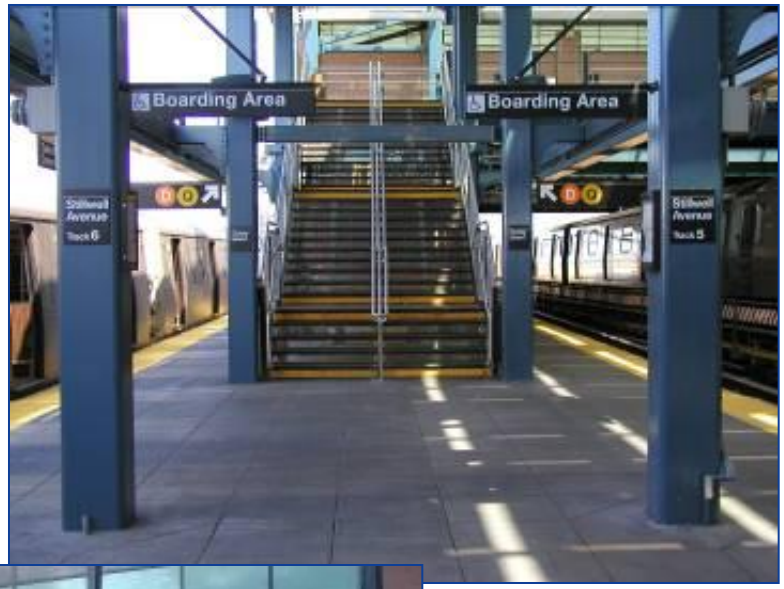
- Investment pace and strategy statement required for each investment group (e.g., signals, station rehabilitation).
- Provides rationale/justification for investments.
- Investment pace and strategy also guided by other agency planning efforts.

Step 3:
20-Year Needs Assessment

Final Product

- Strategy of investments in five year increments:
  - Number of units (total, in SGR).
  - Investment projections, in dollars and units.
  - Updated every five years.

Project Delivery Process



Five Year Capital Plan Process

- Projects are included based on priorities set in 20-Year Needs Assessment.
- Inclusion is based on various factors:
  - Operating need
  - Operating budget impacts
  - Asset condition
  - Coordination efficiency
  - Technological obsolescence
  - Regulatory mandates (ADA)
- Detailed project scopes, budgets, and impacts are defined through a project scoping process, which can begin prior to Five Year Plan.
- Outcome of project scoping process informs decisions to advance design and construction.

Computer Systems

Project Status Reporting system (PSR)

- Home-grown client-server system for:
  - Project budgets/milestones.
  - Descriptive notes.
- Asset records an addition to the system.
  - Records are a snapshot of 20-Year Needs process.
  - Project-to-asset linkages for reporting on capital projects from asset perspective.
- Outputs include:
  - Capital program progress to MTA Board.
  - Public “dashboard” information.
  - Federal biennial “satisfactory continuing control”.
- Continual enhancements with a dedicated staff of application specialists.

Computer Systems (Cont'd)

- 20-Year Needs and program/project development database.
  - Used by planning & budget personnel.
  - Project information for approved five year plan migrates to agency-wide PSR system.
- Maintenance
  - IT, program areas, operations, and sponsor groups involved in data maintenance – along with planning & budget staff.
  - Cyclical based on five year renewal and update cycle.
  - Federal Biennial reporting requirements.

Cooperative Effort

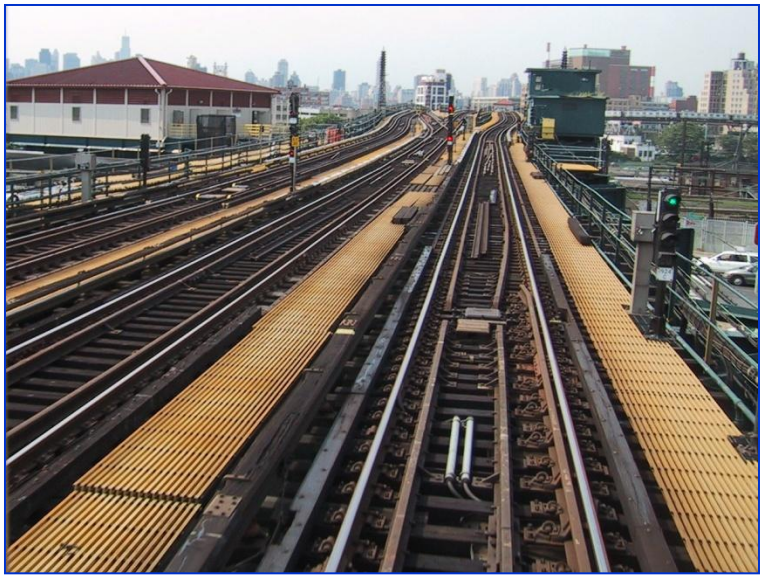
- Various operating departments and groups.
  - Typically, asset information is an extract of other operating/maintenance data.
  - Staying organized is an effort—tracking responses and working with small asset maintainers.

Four examples of Asset Groups

- Each example has different levels of “sophistication”.
- Different levels of detail depending on the maintaining groups and the needs of the capital plan and 20-year needs process.

Example 1: Track and Switches

- 770 miles of track.
  2,400 switches (mainline and yard)
- Multi-leveled inspection and assessment hierarchy; weekly, monthly, quadrennial condition assessment.
- Detailed database by track segment:
  - Defects to be fixed by maintenance.
  - Major issues affecting replacement decisions.
  - Expected remaining useful life.
- Track reconstruction priorities weighed by track access opportunities.



Example 2: Traction Power

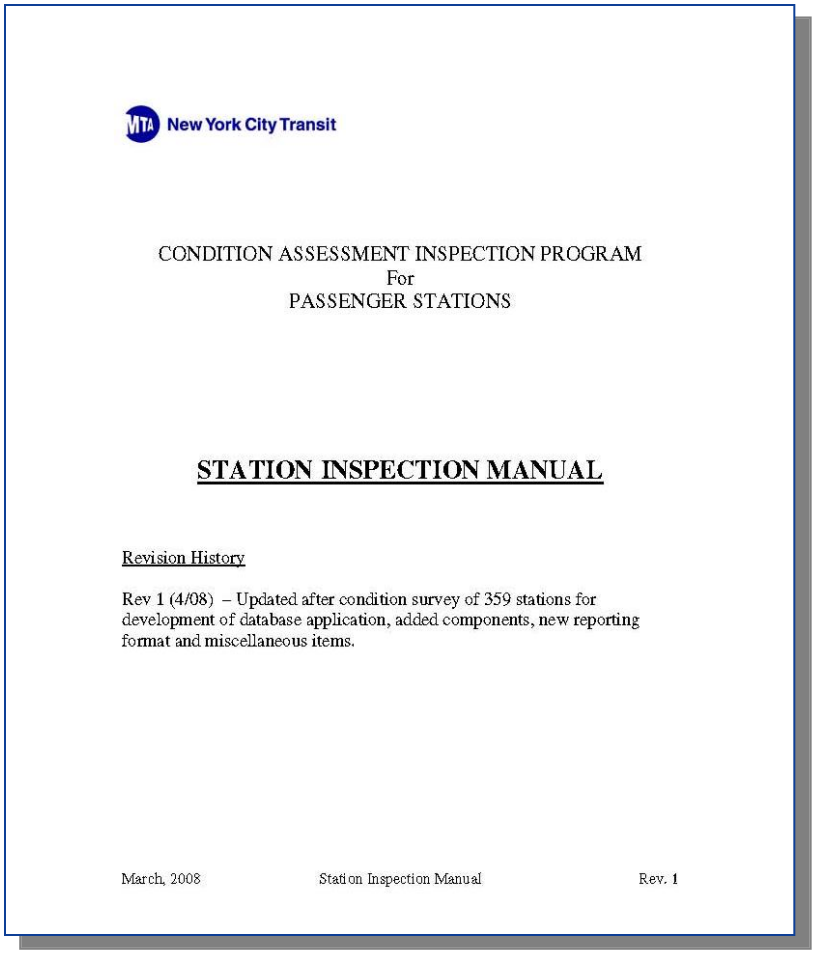
- 216 substations; 299 circuit breaker houses; 3,400 miles of power cables.
- Spreadsheet tables updated as needed by sponsor from operating information.
- Asset condition determines SGR status.
- With substations, various components rated separately, informing a component-based investment strategy.
  - Enclosure
  - Rectifier(s)
  - High-tension line-up, etc.

Example 3: Subway Cars

- 6,330 cars in fleet
  - A-Division: 2,800 cars (numbered lines)
  - B-Division: 3,530 cars (lettered lines)
- Replacements programmed on 40-year useful life, based on irreparable structural fatigue.
- Detailed investigations influence specific retirement decisions; 42-year-old cars retained while 36-year-old cars with structural deterioration were retired.
- Detailed car-level maintenance records available, but not germane to the fleet-level dynamics that drive the capital programming process.

Example 4: Stations

Assessing the Station Condition



New York City Transit

CONDITION ASSESSMENT INSPECTION PROGRAM
For
PASSENGER STATIONS

STATION INSPECTION MANUAL

Revision History

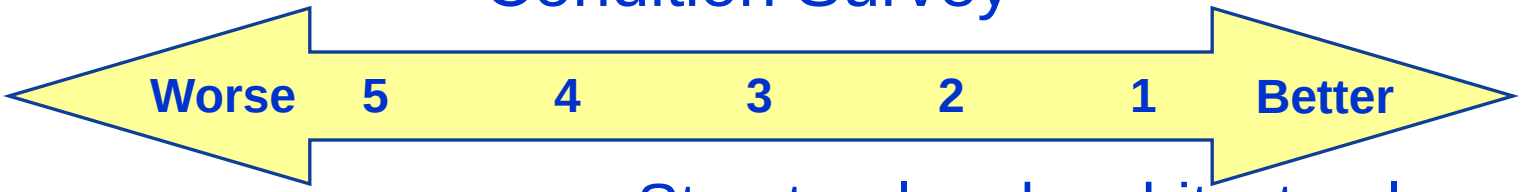
Rev 1 (4/08) – Updated after condition survey of 359 stations for development of database application, added components, new reporting format and miscellaneous items.

March, 2008 Station Inspection Manual Rev. 1

- First-time condition-based survey of all NYCT station elements.
- Three coordinated consultant teams collected data over 18-month period.
- Over 14,000 components were rated, including: stairs, platforms, mezzanines, windscreens, and canopies.
- Engineering consultants identified structure and architectural repair needs on a visual basis.

Example 4: Stations (Cont'd)

Condition Survey



Component Condition Rating Distribution by Station

WORSE ← → BETTER

Station/Component				Total Units	Rating Distribution									
Ditmars Boulevard	MRN:	1												
Line: Astoria	Q	ELV			5	4.5	4	3.5	3	2.5	2	1.5	1	UC
Street Stairs				4			1	1	2					
Interior Stairs				2				2						
Mezzanine Areas:	1													
Ceilings and Walls				1				1						
Floors				1				1						
Columns				1						1				
Platform Areas:	1 Island													
Ceilings and Walls				0										
Floors				1					1					
Thru-Spans				1						1				
Columns				1						1				
Platform Edges				2		2								
Windscreen				0										
Canopy				1						1				
Vents				0										
Other (ramps, overpasses, piers, embankments)				0										
Total Station Components				**15**	**0**	**2**	**1**	**5**	**3**	**4**	**0**	**0**	**0**	**0**
				73%	Percent Total Station Components Rated 3 or Worse									

Station/Component				Total Units	Rating Distribution									
Hoyt Av-Astoria Blvd	MRN:	2												
Line: Astoria	Q	ELV			5	4.5	4	3.5	3	2.5	2	1.5	1	UC
Street Stairs				4					3	1				
Interior Stairs				4						4				
Mezzanine Areas:	3													
Ceilings and Walls				3				1		1	1			
Floors				3				1	2					
Columns				3				2	1					
Platform Areas:	2 Island													
Ceilings and Walls				0										
Floors				2						2				
Thru-Spans				2							2			
Columns				2					1	1				
Platform Edges				4				4						
Windscreen				2						2				
Canopy				2					2					
Vents				0										
Other (ramps, overpasses, piers, embankments)				0										
Total Station Components				**31**	**0**	**0**	**0**	**8**	**9**	**11**	**3**	**0**	**0**	**0**
				55%	Percent Total Station Components Rated 3 or Worse									

- Structural and architectural conditions rated on a scale of 1 (best) to 5 (worst).
- Station reports with photos and descriptions of components with repair needs.
- Database for components and subcomponents.
- Database will be updated and expanded.

Example 4: Stations (Cont'd)

New Approach

Objectives

Cost-effective
- Maintain components that are still in good condition.

Efficient
- Address more stations in shorter period of time.

Flexible
- Address components individually.
- Design guidelines that reflect efficient spending and the individual needs of each station.

Realistic given funding constraints.

Process

Condition Survey

Maintain living condition database of station components system-wide

Station Rehabilitations

14 legacy comprehensive rehabilitations

Station Renewals

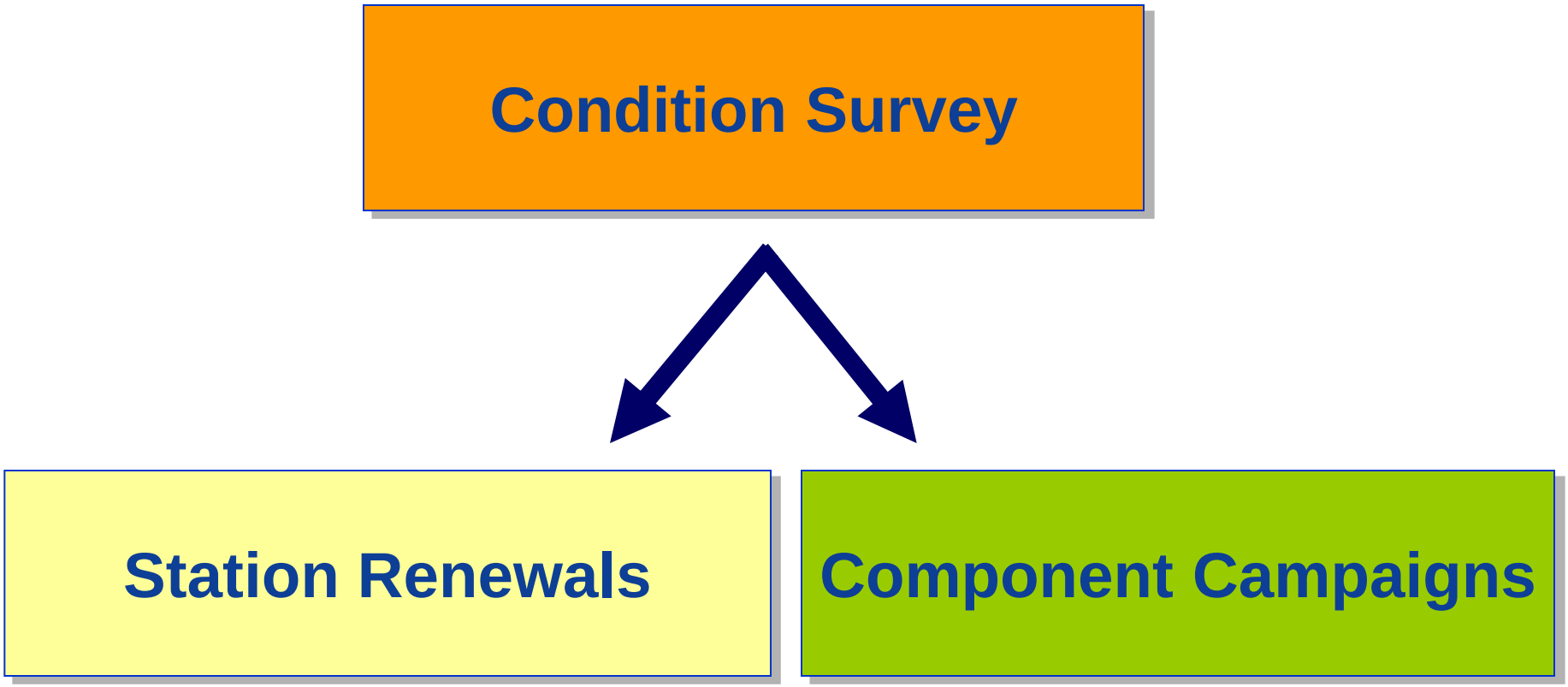
Address all component needs at 25 stations plus improve aesthetics

Component Campaigns

Repair or replacement of individual components

Example 4: Stations (Cont'd)

New Approach



NYCT's Results

- Successful program formulation and credibility with funding partners built on foundation of good asset management.
- Basic information on the entire capital asset base is very valuable.
  - Leads to fewer surprises in the area of programming / prioritization.
  - Can foresee the size of the problem/scale of the roll-out for any existing or new asset investment.
  - Simple tools like shared spreadsheets can largely meet this need.
- Consistent reporting over time is critical.
  - Changes over time must be explainable by investment, degradation, or obsolescence.
  - Reinvestment/improvement cycles are long, but so is the capital asset decay curve (mostly); a wide swing should be an aberration.


7

PSR / CAMS

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Project Summary

Planning Number: **MW38-6838** PSE Number: **S32738** Status: **In Design** 07/2010

Program: **Signal Systems**

Description: **Furnish Sig Equip: Union Tpk &71 Av /QBL**

Unapproved

General Information | Overview | Budget | Notes & Issues | Assets

Milestone List

Milestone	Baseline	Annual Plan	Current	Stat
Design Start	09/2005	07/2006	07/31/2006	A
Prelim Eng Completion	12/2006	01/2008	01/25/2008	A
Final Design Start	02/2008	02/2008	02/08/2008	A
Design Completion	07/2008	12/2009	12/31/2009	A
Construction Start	11/2008	09/2011	01/31/2012	F
Beneficial Use		11/2015	03/31/2016	F
Substantial Completion		12/2015	04/30/2016	F
Construction Closeout		05/2016	09/30/2016	F

Program Officer:	068 - Fred Smith	(646) 252-4345
Program Mgr:	096 - Nidhish Patel	(646) 252-3904
Sponsor Leader:	361 - Tracy Bowdwin	(718) 694-4761
Design Mgr:	058 - Tarik Basu	(646) 252-3192
Construction Mgr:	053 - Vyomesh Shah	(646) 695-5520
Resident Eng:		

Current Phase	Design
Phase Complete	95 %

Current Budget

Pre-Design	0.00
Design	10,935,269.65
Construction	0.00
Consultant Closeout	0.00
Reserve	0.00
Total Budget	10,935,269.65

Base Budget	6,053,582.25
Adopted Budget	10,935,269.65
Encumbered Amt	10,935,269.65
Est Expenditure	9,260,025.60
Est At Compl	139,770,222.83
Approved AWOs	0.00

|< < > >| Pre-Approve 006178

PSR / CAMS

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General Information | Overview | Budget | Notes & Issues | Assets

Asset List (6 Assets)

Asset Category	Asset ID	Seq	Description	Division	Line	Borough
Signal	MW7D-1525-SL		S/O 67 Av - N/E 71 St	IND	QBL	Q
Signal	MW7D-1573-SL		N/E 71 St - N/O 75 Av	IND	QBL	Q
Signal	MW7D-1602-SL		S/O Union Tpk - N/O Unio	IND	QBL	Q
Signal	MW7D-1630-SL		S/O VanWyck-N/O Union T	IND	QBL	Q
Interlocking			Continental Av	IND	QBL	Q
Interlocking			Union Turnpike	IND	QBL	Q

Pre-Approve Add Asset 006178

PSR / CAMS

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Asset Detail

Asset ID	MW7D-1525-SL	Sequence		Quantity	3.82
Category	SIGNAL			Agency	NYCT
Description	S/O 67TH AV - N/E 71ST (CONTINENTAL)			Short Desc	S/O 67 Av - N/E 71 St
Manufacturer				Model	
Type	Air				

General Information | Condition | Location | Projects

Project Asset List (4 Project Assets)

Planning Number	PSE Number	Project Description	Design Start	Constr Award	Subst Compl	Project Total Budget	Fu
MW56-7027		CBTC:QnsBlvdW(50St-71Av)1	02/2011	12/2013		125,000,000.00	
MW38-6838	S32754	Instl SigEquip:UnTpk&71Av		02/2012	02/2016	0.00	
MW38-6838	S32738	Furn Sig Eqpt:UnTpk-71 Av	07/2006	01/2012	04/2016	10,935,269.65	
MW38-6838		2 Intrlkng:UnionTpk&71Av		01/2012		362,791,900.00	

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